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09/761,054	01/15/2001	Thomas J. Dudley	CORE-62	4993
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STEUBING AND MCGUINESS & MANARAS LLP			KIM, DAVID S	
125 NAGOG PARK			ART UNIT	
ACTON, MA 01720			PAPER NUMBER	
			2633	

DATE MAILED: 03/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/761,054

Applicant(s)

DUDLEY, THOMAS J.

Examiner

David S. Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4 and 5 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1-2 and 5** are rejected under 35 U.S.C. 103(a) as being unpatentable over Albanese et al. (U.S. Patent No. 4,712,859) in view of Wright et al. (U.S. Patent No. 6,411,410 B1).

**Regarding claim 5**, Albanese et al. discloses:

A fiberoptic system comprising:

a central office (central office 301 in Fig. 3); and

at least one downstream station (user stations 303-n in Fig. 3) connected to said central office by a bi-directional fiber (fibers 305-1 through 305-N in Figs. 3-4);

said central office comprising means for transmitting a light signal on the bi-directional fiber (laser 323 and modulator 321 in Fig. 3), means for receiving a light signal on the bi-directional fiber (receivers 317-n in Fig. 3) and a CW laser (laser 309 in Fig. 3, col. 5, lines 43-44); and

each said downstream station comprising means for receiving a light signal (photodetector 349 in Fig. 4) and a filter (objects 340 and 347 in Fig. 4), said filter being placed between the downstream station's RX unit and said central office, the filter for selectively reflecting a signal received from the central office ( $\lambda_1$  in Figs. 3-4) on the bi-directional fiber back to the central office on the bi-directional fiber.

Albanese et al. does not expressly disclose:

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said filter being tunable.

However, tunable filters are extremely well known and common in the art. Wright et al. discloses downstream stations that incorporate tunable filters (Wright et al., tunable filter 42 in Fig. 7). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the downstream stations of Albanese et al. to incorporate tunable filters. One of ordinary skill in the art would have been motivated to do this to enable the downstream stations of Albanese et al. to handle different wavelengths, enabling the benefits of wavelength-division multiplexing (Wright et al., col. 1, lines 60-67), such as increased capacity and increased bandwidth efficiency.

**Regarding claim 1**, claim 1 is a system claim that corresponds to system claim 5. Therefore, the recited means in system claim 5 read on the corresponding means in system claim 1.

**Regarding claim 2**, Albanese et al. in view of Wright et al. discloses:

A fiberoptic system according to claim 1 wherein said tunable filter is configured so that during downstream transmission, said tunable filter is tuned (Wright et al., col. 8, lines 6-9) to the wavelength of the central office's TX unit so that the signal transmitted by the central office will pass through (col. 7, lines 34-37) said tunable filter and be received by the station's RX unit.

3. **Claim 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over Albanese et al. in view of Wright et al. as applied to claim 1 above, and further in view of Ramaswami et al. (*Optical Networks: A Practical Perspective*).

**Regarding claim 4**, Albanese et al. in view of Wright et al. does not expressly disclose:

A fiberoptic system according to claim 1 wherein said CW laser is a tunable laser, and each said downstream station is assigned a different wavelength within the tuning range of said laser.

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Ramaswami et al. discloses such a system that utilizes a tunable laser and downstream stations (Ramaswami et al., p. 492, 1<sup>st</sup> full paragraph, Fig. 12.7). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to incorporate these system teachings of Ramaswami et al. One of ordinary skill in the art would have been motivated to do this since “this approach allows each [downstream station] to have electronics running only at the rate it receives data, and not at the aggregate bit rate” (Ramaswami et al., p. 492, 1<sup>st</sup> full paragraph) as is necessary in other comparable systems (Ramaswami et al., p. 491, 1<sup>st</sup> full paragraph – p. 492, 1<sup>st</sup> paragraph, Fig. 12.6).

**Allowable Subject Matter**

4. **Claim 3** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. **Claim 6** is allowed.

6. The following is a statement of reasons for the indication of allowable subject matter:

**The application of the teachings of de Corlieu et al. is withdrawn.**

Upon reconsideration of the application of the teachings of de Corlieu et al., Examiner holds the opinion that it would not have been obvious to apply the tunable filter teachings of de Corlieu et al. to the tunable filter teachings of Albanese et al. in view of Wright et al. In particular, the technical compatibility between the tunable filter teachings of Wright et al. and the tunable filter teachings of de Corlieu et al. is unclear; that is, the technical modifications required to apply the tunable filter teachings of de Corlieu et al. to the tunable filter teachings of Wright et al. is not clear and obvious. Additionally, the tunable filter teachings of de Corlieu et al. do not appear to read on all of the limitations of Applicant's tunable filter.

Note that the tunable filter of Wright et al. (tunable filter 42 in Fig. 7) is used to receive wavelength-division-multiplexed (WDM) signals and then to filter out a selected signal having a specified wavelength from the WDM signals (Wright et al., col. 9, l. 61-67). These features enable the downstream station of Albanese et al. to handle different wavelengths, enabling the benefits of WDM (Wright et al., col. 1, l. 60-67), such as increased capacity and increased bandwidth efficiency. These same critical features should be maintained in the incorporation of additional modifying teachings, such as de Corlieu et al.

The tunable filter of de Corlieu et al. (Fig. 5, col. 4, l. 20-42) is used to modulate a reflected light ray between a transmission state (i.e., a binary “1”) and an extinction state (i.e., a binary “0”). However, the tunable filter of de Corlieu et al. is not shown to teach the aforementioned critical features of the tunable filter of Wright et al.: receiving WDM signals and then filtering out a selected signal having a specified wavelength from the WDM signals. Rather, most embodiments of the tunable filter of de Corlieu et al. reflect all incident light signals (note mirror 9 in the Figures). One embodiment of the tunable filter of de Corlieu et al. does allow a light signal to pass through (Fig.15), but this light signal passes through (col. 5, l. 64-67) the filter irrespective of the tuning of the filter; that is, the tuning of the filter does not cause the filter to filter out a selected signal having a specified wavelength. Accordingly, it is unclear how one of ordinary skill in the art would have modified the tunable filter of Wright et al. with the tunable filter teachings of de Corlieu et al. *so that* the said critical features of the tunable filter of Wright et al. are maintained and preserved.

Additionally, regarding the claim limitations themselves, note the following limitation:

“the station’s tunable filter is *selectively tuned to a wavelength different* than the wavelength of the central office’s CW laser, *so that* the station’s tunable filter will *selectively reflect* light from the CW laser back to the central office” (emphasis Examiner’s).

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This claim language indicates that, when the tunable filter is tuned to a wavelength *different* than the wavelength of an incident light, the tunable filter reflects this same incident light signal. In contrast, de Corlieu et al. teaches that, when the tunable filter is tuned to a wavelength that is the *same* as (phase matching in col. 4, l. 29-31) the wavelength of an incident light signal, the tunable filter reflects this same incident light signal. Thus, it appears that the tunable filter of de Corlieu et al. reflects light in a way that is different from the way Applicant's tunable filter reflects light. Accordingly, even if the tunable filter teachings of de Corlieu et al. were applied, it appears that the tunable filter of the combination of Albanese et al., Wright et al., and de Corlieu et al. would not read on all of the limitations of Applicant's tunable filter.

**Subsequent prior art search did not reveal teachings lacking in the prior art of record.**

With the withdrawal of de Corlieu et al., the following limitations were lacking in Albanese et al. and Wright et al.:

“wherein said tunable filter is configured so that during upstream transmission, the station's tunable filter is *selectively tuned to a wavelength different* than the wavelength of the central office's CW laser, *so that* the station's tunable filter will *selectively reflect* light from the CW laser back to the central office, with said tunable filter being *selectively tuned so as to modulate the light being reflected back to the central office, whereby to effectively create an upstream transmission from the downstream station to the central office*” (emphasis Examiner's).

A subsequent prior art search did not reveal these limitations. Accordingly, allowable subject matter has been indicated.

**Response to Arguments**

7. Applicant filed a request for continued examination (RCE) on 21 December 2004 but did not file any new arguments with the RCE. Applicant's most recent arguments are from an after final response filed on 01 November 2004. The Office considered these arguments to be unpersuasive, as indicated in an Advisory Action mailed on 13 November 2004. However, in reconsideration of the prior art of record, Examiner has withdrawn the application of the teachings of de Corlieu et al., as discussed above. Although Applicant's arguments are not persuasive alone, Examiner has come to realize that a more cogent argument is available against de Corlieu et al. This cogent argument is explained above.

**Conclusion**

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Liu et al. is cited to show a device that can act as a tunable filter and as a modulator. Murphy et al. is cited to show a related fiberoptic system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Kim whose telephone number is 571-272-3033. The examiner can normally be reached on Mon.-Fri. 9 AM to 5 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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